

Vertebroplasty for osteoporotic vertebral fracture

The treatment of painful vertebral compression fractures has changed substantially since the introduction of [vertebroplasty](#) in the mid-1980s and balloon [kyphoplasty](#) in the late 1990s. Both procedures were widely accepted with the vertebral fractures treated reaching 150,000 per annum in 2009 prior to the publication of 2 randomized controlled trials comparing vertebroplasty with a [sham treatment](#) published in the New England Journal of Medicine in August 2009. Since then, there has been a flood of information on vertebral augmentation and balloon kyphoplasty. It is worth evaluating this information especially because it relates to current recommendations that are often followed blindly by medical and administrative groups unfamiliar with either the procedure or the high level of evidence surrounding vertebral augmentation ¹⁾.

All patients experience pain, which can be of varied duration. Most patients are treated conservatively with analgesics, bedrest and bracing, but a small percentage is left with persistent pain and limited mobility.

Improvements in pain and pain-related disability associated with osteoporotic compression fractures in patients treated with vertebroplasty were similar to the improvements in a control group ²⁾.

No beneficial effect of vertebroplasty as compared with a sham procedure in patients with painful osteoporotic vertebral fractures, at 1 week or at 1, 3, or 6 months after treatment ³⁾.

The exact mechanism of pain relief by vertebroplasty is not understood; the pain relief is probably because of improved vertebral body strength and stiffness and decreasing motion of the vertebral body and periosteal and interosseous nerves. But, PV is not without risks. Therefore, until further studies show that PV is superior to conservative treatment, with equivalent complications profile, PV should be reserved for patients who have failed conservative treatment ⁴⁾.

Complications

It is widely accepted that new compression fractures tend to occur adjacent to the vertebral bodies, typically within a month after VP. Advanced age and decreased lumbar and hip BMD scores most strongly indicated a risk of adjacent VF following VP ⁵⁾.

¹⁾ Beall DP, McRoberts WP, Berven SH, Ledlie JT, Tutton SM, Parsons BP. Critique of the Analysis of UpToDate.com on the Treatment of Painful Vertebral Compression Fractures: Time to Update UpToDate. AJNR Am J Neuroradiol. 2014 Nov 20. [Epub ahead of print] PubMed PMID: 25414003.

²⁾ Kallmes DF, Comstock BA, Heagerty PJ, Turner JA, Wilson DJ, Diamond TH, Edwards R, Gray LA, Stout L, Owen S, Hollingworth W, Ghdoke B, Annesley-Williams DJ, Ralston SH, Jarvik JG. A randomized trial of vertebroplasty for osteoporotic spinal fractures. N Engl J Med. 2009 Aug 6;361(6):569-79. doi: 10.1056/NEJMoa0900563. Erratum in: N Engl J Med. 2012 Mar 8;366(10):970. PubMed PMID: 19657122; PubMed Central PMCID: PMC2930487.

³⁾ Buchbinder R, Osborne RH, Ebeling PR, Wark JD, Mitchell P, Wriedit C, Graves S, Staples MP, Murphy B. A randomized trial of vertebroplasty for painful osteoporotic vertebral fractures. N Engl J Med. 2009 Aug 6;361(6):557-68. doi: 10.1056/NEJMoa0900429. PubMed PMID: 19657121.

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